REMARKS

Applicants respectfully request further examination and reconsideration in view of the above amendments and the arguments set forth fully below. Claims 1-25 were pending. Claims 1-25 have been rejected. By the above amendment, Claims 1, 6, 13 and 17 have been amended. Claims 1-25 are currently pending in this application.

Rejections Under 35 U.S.C. § 102

Within the Office Action, Claims 1, 2, 4, 6, 8, 10-13, 17 and 23-25 have been rejected under 35 U.S.C. §102 (e) as being anticipated by U.S. Patent No. 5,841.471 to Endsley et al. (hereinafter "Endsley"). Endsley teaches timing control for a digitally interfaced camera using variable line readout intervals. Endsley teaches a digital camera that is designed to capture images and transfer the captured images to a host computer while utilizing only a small line store memory. [Endsley, col. 1, lines 52-56] The camera of Endsley uses the image sensor as an analog frame memory, instead of having a full digital memory in the camera, so that only a small amount of memory, configured as a line store, is required. [Endsley, col. 2, lines 1-4] Endsley teaches that to accommodate bus latency, the camera timing generator adjusts the line blanking interval between line readout times. [Endsley, col. 2, lines 4-6] Endsley refers to this as "line throttle clocking" the image sensor 20 by varying a line blanking interval from line to line, so as to transfer lines of data from the CCD image sensor into the line store memory at the appropriate time. [Endsley, col. 4, lines 54-59] *Endsley does not however teach varying the number of data units within a line or a frame to achieve a desired frame rate.* Rather, Endsley teaches that in order to utilize a small line store memory, the camera timing generator adjusts the line blanking interval between line readout times.

Endsley teaches that when the line store memory has sufficient room to accommodate a new line of image data, the timing generator creates the vertical and horizontal timing pulses needed to read out the next line from the image sensor. [Endsley, col. 4, line 66 - col. 5, line 5] Endsley further teaches that, since the waiting period depends on the traffic on the USB, the line readout times and frame readout times are variable. [Endsley, col. 5, lines 6-9] Endsley does not teach varying the number of packets per frame to achieve a desired frame rate. As described above, Endsley only teaches that the line readout times and frame readout times are variable. Endsley further teaches that if there is lots of other traffic on the bus and the time required to read out an image exceeds the frame time, then the next frame is skipped. [Endsley, col. 5, lines 59-67] Endsley does not teach transmitting a stream of data including x number of first data blocks

and y number of second data blocks, wherein the first data blocks and the second data blocks are of a same type and have the same characteristics.

In contrast to the teachings of Endsley, the present invention is directed to a method of and apparatus for transmitting an isochronous video stream of data at a particular frame rate from a source device to a receiving device. The source device preferably determines a proper ratio of data packets versus video frames in response to the particular frame rate required and a cycle time for isochronous data. This proper ratio of data packets versus video frames rarely computes to an integer result. Accordingly, once the proper ratio of data packets versus video frames is determined, the source device preferably generates two groups of frames. A first group contains an integer value of packets nearest to and above the desired overall average ratio of data packets versus video frames. The source device also generates a second group of frames where each frame from this second group contains an integer value of packets nearest to and below the ratio of packets versus video frames. In order to achieve the desired frame rate, the source device generates a frame ratio containing a specific number of frames from the first group and the second group and forms the isochronous stream of video data. Accordingly, the frames from the first group and the frames from the second group are of a same type and have the same characteristics. The source device serially generates each of the frames in an order including a combination of the first group of frames and the second group of frames to achieve the overall desired average frame ratio. The source device then transmits the resulting isochronous video stream of data to the receiving device at the desired frame rate. As described above, Endsley does not teach transmitting a stream of data including x number of first data blocks and y number of second data blocks, wherein the first data blocks and the second data blocks are of a same type and have the same characteristics. Endsley also does not teach varying the number of data units within a line or a frame to achieve a desired frame rate.

Within the Response to Arguments section of the Office Action, it is stated that varying the number of data units within a line or a frame to achieve a desired frame rate is not specifically claimed in the claimed limitations. By the above amendment, the applicants have amended the independent Claims 1, 6, 13 and 17 to specify that the first and second data blocks contain a different number of data units. As described above, Endsley does not teach transmitting a stream of data including x number of first data blocks, containing n units of data, and y number of second data blocks, containing m units of data, wherein m is not equal to n, and the first data blocks and the second data blocks are of a same type and have the same characteristics.

The independent Claim 1 is directed to a method of transmitting information from a source device at a predetermined rate. The method of Claim 1 includes forming x number of first data blocks *wherein each of the first data blocks contains n units of data,* forming y number of second data blocks *wherein each of the second data blocks contains m units of data,* ***and further wherein m is not equal to n*** and combining x number of first data blocks and y number of second data blocks into a data stream to achieve the predetermined rate. Claim 1 includes the further limitation that the first data blocks and the second data blocks are of a same type and have same characteristics. As described above, Endsley does not teach transmitting a stream of data including x number of first data blocks, containing n units of data, and y number of second data blocks, containing m units of data, wherein m is not equal to n and further wherein the first data blocks and the second data blocks are of a same type and have same characteristics. For at least these reasons, the independent Claim 1 is allowable over the teachings of Endsley.

Claims 2 and 4 are both dependent upon the independent Claim 1. As discussed above, the independent Claim 1 is allowable over the teachings of Endsley. Accordingly, Claims 2 and 4 are both also allowable as being dependent upon an allowable base claim.

The independent Claim 6 is directed to a method of transmitting information from a source device to a receiving device. The method of Claim 6 includes forming x number of first frames *wherein each of the first frames contains n units of data*, forming y number of second frames *wherein each of the second frames contains m units of data* ***and further wherein m is not equal to n***, combining x number of the first frames and y number of the second frames into a stream of frames to achieve a predetermined frame rate and transmitting the stream of frames from the source device to the receiving device. Claim 6 includes the further limitation that the first frames and the second frames are of a same type and have same characteristics. As described above, Endsley does not teach transmitting a stream of data including x number of first frames and y number of second frames, wherein the first data blocks and the second data blocks are of a same type and have same characteristics. Further, as described above, Endsley does not teach that first frames contain n units of data and second frames contain m units of data wherein m is not equal to n. For at least these reasons, the independent Claim 6 is allowable over the teachings of Endsley.

Claims 8 and 10-12 are all dependent upon the independent Claim 6. As discussed above, the independent Claim 6 is allowable over the teachings of Endsley. Accordingly, Claims 8 and 10-12 are each also allowable as being dependent upon an allowable base claim.

The independent Claim 13 is directed to a source device for transmitting information at a predetermined frame rate. The source device of Claim 13 comprises a controller for generating a

data stream containing a plurality of *first frames each including x packets of data* and a plurality of *second frames each including y packets of data* to achieve the predetermined frame rate, wherein the data stream is transmitted at the predetermined frame rate ***and y is not equal to x***. Claim 13 includes the further limitation that the first frames and the second frames are of a same type and have same characteristics. As described above, Endsley does not teach transmitting a data stream including a plurality of first frames each including x packets of data and a plurality of second frames each including y packets of data, wherein y is not equal to x and further wherein the first frames and the second frames are of a same type and have same characteristics. For at least these reasons, the independent Claim 13 is allowable over the teachings of Endsley.

The independent Claim 17 is directed to a system for transmitting information at a predetermined frame rate. The system of Claim 17 comprises a source device for generating a data stream containing a plurality of *first frames each including x packets of data* and a plurality of *second frames each including y packets of data* to achieve the predetermined frame rate ***and y is not equal to x***, wherein the first frames and the second frames are of a same type and have same characteristics, and a remote receiver coupled to the source device and configured to receive the data stream at the predetermined frame rate. As described above, Endsley does not teach generating a data stream containing a plurality of first frames each including x packets of data and a plurality of second frames each including y packets of data to achieve the predetermined frame rate and y is not equal to x. Endsley also does not teach that the first frames and the second frames are of a same type and have same characteristics. For at least these reasons, the independent Claim 17 is allowable over the teachings of Endsley.

Claims 23-25 are all dependent on the independent Claim 17. As discussed above, the independent Claim 17 is allowable over the teachings of Endsley. Accordingly, Claims 23-25 are each also allowable as being dependent upon an allowable base claim.

Within the Office Action, Claims 1, 2, 4, 6, 8, 10-13, 17, 19 and 23-25 have been rejected under 35 U.S.C. §102 (e) as being anticipated by U.S. Patent No. 5,982,416 to Ishii et al. (hereinafter "Ishii"). Ishii teaches an image processing method and apparatus. Ishii teaches that the image processor provides a color space conversion characteristic suitable for an image which includes a transfer unit for transferring digital color image data representing a desired image input by an image input unit and having a color space depending on the image input unit. [Ishii, Abstract] The apparatus of Ishii also includes an extraction unit which extracts a color space conversion characteristic used to convert the color space depending on the image input unit into another color space. [Ishii, Abstract] Ishii teaches that the transfer unit transfers the digital color image data having the color space depending on the image input unit and the color space

conversion characteristic. [Ishii, Abstract] Ishii teaches that image packet data and the color space characteristic data packet are multiplexed along the time axis. [Ishii, col. 6, lines 63-67] However, these are different types of data. Ishii does not teach transmitting a stream of data including x number of first data blocks and y number of second data blocks, wherein the first data blocks and the second data blocks are of a same type and have same characteristics.

Within the Response to Arguments section of the Office Action, it is stated that the image packet data and the color space characteristic data of Ishii is of the same type because both correspond to the image information. The applicants respectfully disagree. Ishii teaches that the packet of image data which has a large data amount is formed on the basis of the isochronous transfer scheme. [Ishii, col. 5, lines 65-67] Ishii also teaches that the packet of color space characteristic data which has a small data amount, is occasionally transferred, and is formed on the basis of the asynchronous transfer scheme. [Ishii, col. 5, line 65 - col. 6, line 3] Ishii then further teaches the differences in type and characteristics between asynchronous and isochronous packets. [Ishii, col. 6, lines 7-17] Thus, Ishii **does** teach that the image packet data and the color space characteristic data are of different types and have different characteristics. As described above, Ishii does not teach transmitting a stream of data including x number of first data blocks and y number of second data blocks, wherein the first data blocks and the second data blocks are of a same type and have same characteristics.

In contrast to the teachings of Ishii, the present invention is directed to a method of and apparatus for transmitting an isochronous video stream of data at a particular frame rate from a source device to a receiving device. The source device preferably determines a proper ratio of data packets versus video frames in response to the particular frame rate required and a cycle time for isochronous data. This proper ratio of data packets versus video frames rarely computes to an integer result. Accordingly, once the proper ratio of data packets versus video frames is determined, the source device preferably generates two groups of frames. A first group contains an integer value of packets nearest to and above the desired overall average ratio of data packets versus video frames. The source device also generates a second group of frames where each frame from this second group contains an integer value of packets nearest to and below the ratio of packets versus video frames. In order to achieve the desired frame rate, the source device generates a frame ratio containing a specific number of frames from the first group and the second group and forms the isochronous stream of video data. Both the frames of the first group and the frames of the second group are formed of isochronous data packets. Accordingly, the frames from the first group and the frames from the second group are of a same type and have same characteristics. The source device serially generates each of the frames in an order

including a combination of the first group of frames and the second group of frames to achieve the overall desired average frame ratio. The source device then transmits the resulting isochronous video stream of data to the receiving device at the desired frame rate. As described above, Ishii does not teach transmitting a stream of data including x number of first data blocks and y number of second data blocks, wherein the first data blocks and the second data blocks are of a same type and have same characteristics. Ishii teaches combining image data packets, which are isochronous, and color space characteristic data packets, which are asynchronous. Ishii does not teach combining first data blocks and second data blocks of a same type and of same characteristics.

The independent Claim 1 is directed to a method of transmitting information from a source device at a predetermined rate. The method of Claim 1 includes forming x number of first data blocks wherein each of the first data blocks contains n units of data. forming y number of second data blocks wherein each of the second data blocks contains m units of data and further wherein m is not equal to n, and combining x number of first data blocks and y number of second data blocks into a data stream to achieve the predetermined rate. Claim 1 includes the further limitation that the first data blocks and the second data blocks are of a same type and have same characteristics. As described above, Ishii does not teach transmitting a stream of data including x number of first data blocks and y number of second data blocks, wherein the first data blocks and the second data blocks are of a same type and have same characteristics. For at least these reasons, the independent Claim 1 is allowable over the teachings of Ishii.

Claims 2 and 4 are both dependent upon the independent Claim 1. As discussed above, the independent Claim 1 is allowable over the teachings of Ishii. Accordingly, Claims 2 and 4 are both also allowable as being dependent upon an allowable base claim.

The independent Claim 6 is directed to a method of transmitting information from a source device to a receiving device. The method of Claim 6 includes forming x number of first frames wherein each of the first frames contains n units of data, forming y number of second frames wherein each of the second frames contains m units of data, and further wherein m is not equal to n, combining x number of the first frames and y number of the second frames into a stream of frames to achieve a predetermined frame rate and transmitting the stream of frames from the source device to the receiving device. Claim 6 includes the further limitation that the first frames and the second frames are of a same type and have same characteristics. As described above, Ishii does not teach transmitting a stream of data including x number of first frames and y number of second frames, wherein the first data blocks and the second data blocks

are of a same type and have same characteristics. For at least these reasons, the independent Claim 6 is allowable over the teachings of Ishii.

Claims 8 and 10-12 are all dependent upon the independent Claim 6. As discussed above, the independent Claim 6 is allowable over the teachings of Ishii. Accordingly, Claims 8 and 10-12 are each also allowable as being dependent upon an allowable base claim.

The independent Claim 13 is directed to a source device for transmitting information at a predetermined frame rate. The source device of Claim 13 comprises a controller for generating a data stream containing a plurality of first frames each including x packets of data and a plurality of second frames each including y packets of data to achieve the predetermined frame rate, wherein the data stream is transmitted at the predetermined frame rate and y is not equal to x. Claim 13 includes the further limitation that the first frames and the second frames are of a same type and have same characteristics. As described above, Ishii does not teach transmitting a data stream including a plurality of first frames each including x packets of data and a plurality of second frames each including y packets of data, wherein the first frames and the second frames are of a same type and have same characteristics. For at least these reasons, the independent Claim 13 is allowable over the teachings of Ishii.

The independent Claim 17 is directed to a system for transmitting information at a predetermined frame rate. The system of Claim 17 comprises a source device for generating a data stream containing a plurality of first frames each including x packets of data and a plurality of second frames each including y packets of data to achieve the predetermined frame rate and y is not equal to x, wherein the first frames and the second frames are of a same type and have same characteristics, and a remote receiver coupled to the source device and configured to receive the data stream at the predetermined frame rate. As described above, Ishii does not teach generating a data stream containing a plurality of first frames each including x packets of data and a plurality of second frames each including y packets of data, wherein the first frames and the second frames are of a same type and have same characteristics. For at least these reasons, the independent Claim 17 is allowable over the teachings of Ishii.

Claims 19 and 23-25 are all dependent on the independent Claim 17. As discussed above, the independent Claim 17 is allowable over the teachings of Ishii. Accordingly, Claims 19 and 23-25 are each also allowable as being dependent upon an allowable base claim.

Rejections Under 35 U.S.C. § 103

Within the Office Action, Claims 5, 7, 14, 18, 21 and 22 have been rejected under 35 U.S.C. §103 (a) as being unpatentable over Endsley. Claim 5 is dependent on the independent

Claim 1. Claim 7 is dependent on the independent Claim 6. Claim 14 is dependent on the independent Claim 13. Claims 18, 21 and 22 are all dependent on the independent Claim 17. As discussed above, the independent Claims 1, 6, 13 and 17 are all allowable over the teachings of Endsley and Ishii. Accordingly, Claims 5, 7, 14, 18, 21 and 22 are all also allowable as being dependent upon an allowable base claim.

Within the Office Action, Claims 5, 7, 14, 18 and 20-22 have been rejected under 35 U.S.C. §103 (a) as being unpatentable over Ishii. Claim 5 is dependent on the independent Claim 1. Claim 7 is dependent on the independent Claim 6. Claim 14 is dependent on the independent Claim 13. Claims 18 and 20-22 are all dependent on the independent Claim 17. As discussed above, the independent Claims 1, 6, 13 and 17 are all allowable over the teachings of Endsley and Ishii. Accordingly, Claims 5, 7, 14, 18 and 20-22 are all also allowable as being dependent upon an allowable base claim.

For the reasons given above, Applicants respectfully submit that all of the claims are in a condition for allowance, and allowance at an early date would be appreciated. Should the Examiner have any questions or comments, they are encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,
HAVERSTOCK & OWENS LLP

Dated: February 6, 2002

By: Jonathan O. Owens
Jonathan O Owens
Reg. No. 37,902
Attorneys for Applicant(s)

CERTIFICATE OF MAILING (37 CFR § 1.8(a))

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to the: Assistant Commissioner for Patents, Washington D.C. 20231

HAVERSTOCK & OWENS LLP

Date: 02/06/02 By: Naraunker

Version Of Amended Claims With Markings To Show Changes Made:

1. (Three Times Amended) A method of transmitting information from a source device at a predetermined rate, the method comprising:

a. forming x number of first data blocks wherein each of the first data blocks contains n units of data;

b. forming y number of second data blocks wherein each of the second data blocks contains m units of data, and further wherein m is not equal to n; and

c. combining x number of first data blocks and y number of second data blocks into a data stream to achieve the predetermined rate, wherein the first data blocks and the second data blocks are of a same type and have same characteristics.

6. (Three Times Amended) A method of transmitting information from a source device to a receiving device, the method comprising:

a. forming x number of first frames wherein each of the first frames contains n units of data;

b. forming y number of second frames wherein each of the second frames contains m units of data, and further wherein m is not equal to n;

c. combining x number of the first frames and y number of the second frames into a stream of frames to achieve a predetermined frame rate; and

d. transmitting the stream of frames from the source device to the receiving device;

wherein the first frames and the second frames are of a same type and have same characteristics.

13. (Twice Amended) A source device for transmitting information at a predetermined frame rate, the source device comprising a controller for generating a data stream containing a plurality of first frames each including x packets of data and a plurality of second frames each including y packets of data to achieve the predetermined frame rate, wherein the data stream is transmitted at the predetermined frame rate and y is not equal to x and further wherein the first frames and the second frames are of a same type and have same characteristics.

17. (Twice Amended) A system for transmitting information at a predetermined frame rate, the system comprising:

a. a source device for generating a data stream containing a plurality of first frames each including x packets of data and a plurality of second frames each including y

packets of data to achieve the predetermined frame rate and y is not equal to x, wherein the first frames and the second frames are of a same type and have same characteristics; and

b. a remote receiver coupled to the source device and configured to receive the data stream at the predetermined frame rate.